

Appl. No. : **09/552,150**
Filed : **April 18, 2000**

REMARKS

In response to the Office Action, Applicant respectfully requests the Examiner to reconsider the above-captioned application in view of the foregoing amendments and the following comments.

Status of the Claims

Claims 1, 2, 6, 7, 9-31, and 33-46 have been allowed. Claims 47-51 are rejected. Claim 52 would be allowable if rewritten into independent form.

Discussion of Claim Rejections Under 35 U.S.C. §§ 102(b)

The present application generally describes a communication system that facilitates communication between a base station and multiple terminals. The base station advantageously includes two or more spatially diverse transmitting and/or receiving means, such as antennas.

In one embodiment, in downlink communications, the base station transmits multiple data signals, each intended for a specific terminal, to multiple terminals. The base station first receives the multiple data signals that are to be transmitted to respective terminals. The data signals are combined to form two combined data signals that will each be respectively transmitted from one of the base stations antennas. Thus, each of the spatially diverse antennas of the base station transmits a different combined data signal. The combined data signals are transmitted from the spatially diverse transmitting means so that the combined data signals combine in the air, forming a different composite data signal at each of the terminals. The base station advantageously forms the combined data signals so that, based on the respective composite data signals received at each terminal, each terminal may estimate a data signal intended for the respective terminal. Thus, at least one of the terminals estimates a data signal without the use of a code for selecting a particular data signal from a received composite data signal. For further discussion, see page 5, line 25 to page 6, line 21; page 8, lines 1-10 and page 13, line 27 to page 14 line 16.

In uplink communications, multiple terminals transmit data to a base station. The base station, having a spatially diverse receiving means, receives a transmitted data signal from each of a plurality of terminals on at least two receiving means, such as antennas. The base station

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then uses the spatial signature, or the characteristics that are different in the signals received on each of the spatially diverse receiving means to determine which of the terminals transmitted each signal. In one embodiment, each signal is subdivided into multiple subbands for transmission on multiple subcarriers to the base station. The base station performs operations on the received signal in a carrier by carrier manner. More particularly, in operating on a particular subband of data, the base station does not use information regarding adjacent subbands. For further discussion, see page 7, lines 22-30 and page 13, lines 2-26.

In the Office Action, the Examiner rejected Claims 47-51 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,122,260, to Lui, et al. In view of the above amendments and the following remarks, Applicant respectfully requests reconsideration.

Claim 47

Independent Claim 47 is directed to a method of transmitting data signals from a base station to multiple receiving terminals. Applicant respectfully submits that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. See M.P.E.P. § 2131.

Claim 47 as amended recites:

47. A communication method comprising:
receiving a plurality of data signals at a base station;
generating a first combined data signal based at least on a first and second
of said plurality of data signals,
generating a second combined data signal based at least on the first and
second of said plurality of data signals,
wherein the first and second combined data signals are adapted for
facilitating estimation of one of the plurality of data signals at each of a plurality
of receiving terminals; and
transmitting from each of two transmitters one of the combined data
signals.

Applicant respectfully submits that Liu does not expressly teach or suggest that *two* or more different *combined* data signals are generated for facilitating estimation of data contained in the combined data signals by each of multiple receiving terminals, wherein the combined data signals are combined in the air so that a composite data signal received by each of multiple receiving terminals may be used to estimate a data signal intended for each respective receiving

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terminal. Since Liu fails to teach or suggest at least this claimed feature, Applicant respectfully submits that Claim 47 is in condition for allowance.

Claim 50

Independent Claim 50 is directed to a method of transmitting data signals from multiple terminals to a base station. Claim 50, as amended, recites:

“receiving at a base station on two spatially diverse receiving means respective representations of a data signal, wherein the representations of said data signal received on the two receiving means are each a function of the data signal; subband processing a data signal; and subsequent to subband processing the data signal, estimating the data signal based at least partly on the differences between the representations of the data signal received on the two receiving means due to the different transmission paths taken by each of the data signals.”

In the Office Action, the Examiner indicated that the subject matter of Claim 52 is directed to allowable subject matter, i.e., inverse subband processing the data signal prior to transmission to the base station in conjunction with the other cited limitations from base Claim 50. In view of the Notice of Allowable subject matter, Claim 50 has been amended to recite that the data signal is inverse subband processed. Accordingly, Applicant respectfully submits that Claim 50 is now in condition for allowance.

Claims 48, 49, 51 and 52

Since claims 48, 49, 51 and 52 each depend on one of claims 47 and 50, Applicant respectfully submits that those claims are allowable for the reasons discussed above and the subject matter of their own limitations.

Conclusion

Applicant has endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. In light of the above amendments and remarks, reconsideration and withdrawal of the outstanding rejections is respectfully requested. If the Examiner has any questions which may be answered by telephone, he is invited to call the undersigned directly.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Appl. No. : 09/552,150
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Respectfully submitted,

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